



Welcome to ALDEL'S (WOODRAT) WEB SITE

[Home](#) | [Foreword](#) | [News](#) | [Through Dovetails](#) | [Jigs and Mods](#) | [Jigs and Mods2](#) | [Jigs and Mods3](#) | [Jigs and Mods4](#)
| [Work Holding 1](#) | [Tips](#) | [My Chat](#) | [Feed Back](#) | [Feedback2](#) | [Feedback3](#) | [Gallery](#) | [Reviews Page](#) | [Reviews1](#) | [Reviews2](#)
| [Reviews3](#) | [Reviews4](#) | [Links](#) | [Routers](#) | [Mini_Planes](#) | [Guestbook](#) | [Tools2004](#)



Through Dovetails

(click on thumbnails to enlarge photos)

Feedback

Martin Godfrey feels that this article implies that the standard method of cutting dovetails as very well described in the latest manual is somehow flawed or an unsuitable way of working. *Let me say here and now, my way is not the way. It has never been my intention to suggest otherwise.* I have always had the view that the manual is well presented and clear, so use that as the definitive way to do things. The 'Rat remains such a versatile tool that there will always be alternative ways of going about things and documenting those ideas is what this site is all about.

As a comparison, it is my intention to describe the WoodRat method at some time in the future.

It has been a privilege to receive some feedback from the man at the top.

The description below has been slightly edited.

Gather the tools

Described below is an alternative method of making through dovetails on the 'Rat. I use this method because I prefer to take my time to make them as accurate as possible and without reference to scales or charts. My way follows loosely the way hand cut ones are made but does require a couple of hand tools.

You need a sliding bevel gauge and a sharp marking knife, Stanley type or scalpel. Oh, and of course a try-square.





Most WoodRat dovetail cutters have a slope of 1 in 7 or 8 degrees. If you don't yet own a sliding bevel then you can make your own fixed one. I made one from acrylic plastic.

You do not of course have to use 'Rat cutters as this method applies to any angle router bit. If you aren't sure of your bit angle, just make a full depth cut in some scrap and set the sliding bevel to that.

There are several ways to arrive at the angle, i.e. use a protractor or make use of sliding mitre gauge. I have found the most accurate way is to actually draw it on paper and measure from that.



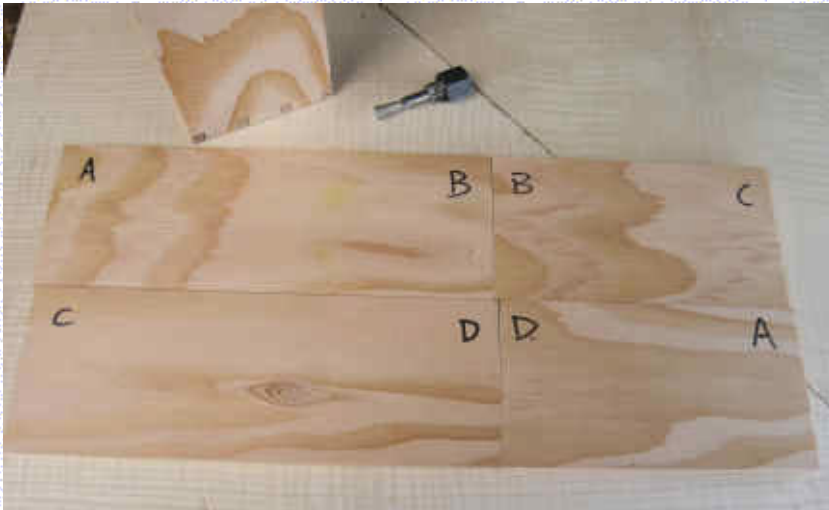
Draw a perpendicular line 7 units long and on the end of that a line at 90 degrees 1 unit long. Join the end of the short line to the base and you will subtend an angle of 8 degrees. The photo will explain things better. In the photo you can also see a little dovetail marker jig cut from a bit of alloy angle. An 8 degree and 90 degree cut on either end.



A slope of 1 in 7 = 8 degrees, a slope of 1 in 9 = 6.5 degrees, a slope of 1 in 6 = 9.5 degrees.

Prepare the wood

OKaay (a Normism!) I assume that you have cut your four box sides all square and parallel so now you need to mark them up.



So that I don't lose track of what end joins to what, I mark each adjoining corner at the top and on the outside face as shown. Select the correct depth of dovetail cutter.

Next job is to mark equal spacing on the end of one tail board in the standard WoodRat way like this.



I use my little gauge to check and pencil in my markings like this

Prepare the 'Rat

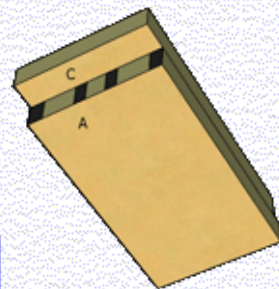
Test to make sure the plate is at right angles to the face then remove the rails and with the button in position set the spirals so that the router plate runs North/South at 90 degrees, like this.





Cut the Dovetails

Place both dovetail sides in the cutter position, one on top of the other and the marked front/top oriented as shown in the photo. I place a pin board up under the plate and draw a line to set the cutting depth. Lower the cutter and lock the router when at the correct depth. I also set the router depth gauge at this point (please note that I drew this line on a piece that I had made earlier and didn't notice that I had made a mess of it until after I had loaded the photo) Now I track the carriage and make the first cut to the line on the left side of the work. *Do not move the carriage* and cartwheel the work and cut the other end in the same position. Cartwheel again, track to the second position and cut again. Cartwheel and cut the other end. Repeat this process until all the tails are cut. That's it, the dovetails are made. Replace the cutter with a straight one in preparation for the pins.



Prepare the 'Rat for the pins

Now the button can be more or less set anywhere since it is just acting as a pivot but is best placed as far forward as



possible like here but not so that the cutter can come into contact with it. If the button is set too near to



you like here then the cutter will come into contact with the plate.

This set up can be achieved very quickly and does not require any reference to charts or setting scale positions etc. Once the the button position has been arbitrarily set, do not move it after setting the spiral positions or your cutting angle will change.

We now have to set the spirals so that the router plate can swing 8 degrees either side of vertical. To do this we need our



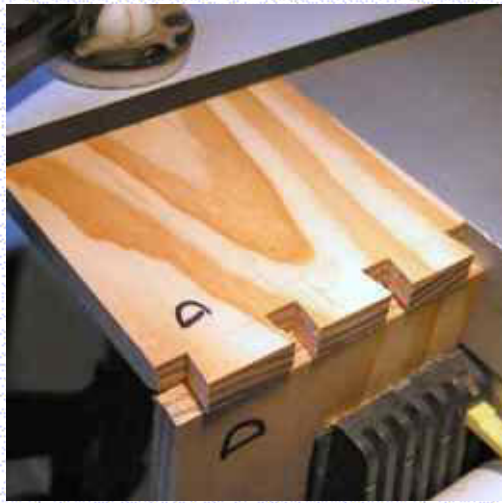
sliding bevel or home made 8 degree tee like this left setting and right and here



Marking up the pins

This is where we come to the part that is different to WoodRat's method. It doesn't take very long once you have grasped the principle.

I clamp a dovetail side with its edge flush against the face of the channel as shown here The pin side is held in the cam lock



tight up to the underside of the dovetail side and the outside faces are orientated as shown in the photo. It is now a simple matter to track the pin board so that the *inside* edge is in exact alignment with the bottom of the dovetail cut-out.

Use your marking knife or Stanley type (or bevel edge chisel!) next to carefully mark the dovetails onto the pin board.

I find it best to keep the knife flat and push down rather than taking a slicing action. Ensure that the blade is tight up to the dovetail face and don't cut any of the dovetail out! Mark all edges. On very fine dovetails it is probably better to use a pointed scalpel. A pencil just can't get close enough to the edges. I repeat this process for all four corners. I think you will be surprised how quickly you can complete this operation.



Now if you are young with good eyesight you can cut to the marked knife lines, but me being a glasses wearer and past my sell by date have to move to next stage.



I take each pin board and with the aid of a very sharp pencil and the little alloy guide, I highlight each scribed line. A sharp pencil will run in the groove made by the knife so very little error will creep in here.

Cutting the pin boards

With the pin board clamped in the work position, place a tail board flat up under the plate and mark the cutting depth with a pencil. Again plunge the router bit to this line and lock and set the depth of the router. I do this because my router has the revolving tower type of depth setting and it is not possible to use WoodRat's method

With the router plate held alternately against each spiral proceed to cut away the waste from the pins.



I find that if I cut slightly away from the marked lines and hold the cutter in position with the router powered on, I can slowly and very accurately track the work until the cutter is exactly on the line.




Remove the pin board and test fit it into its corresponding dovetail. In the unlikely event that it is not a good fit replace into the cutter position and very lightly trim the offending pin. Cut all the other pin board ends. It is not important which way you place the board into the cutter position as you are cutting to a line.




Here is a joint which has had no sanding or planing and as you can see it is a pretty reasonable fit. Even with individual marking of the pin boards I find that I can still produce four box sides quickly.



An Adobe PDF sheet with various angles drawn on for you to print out onto card to set up your sliding bevel gauge is here:

 [Angles.pdf](#) Use "save target as when opened" Or click on the disk icon. The page is set at standard A4 size rather than 'murrican'



This method requires:

- No test sticks to cut or make
- No scales or precise button positions

Disadvantages:

- Not really suitable for batch cutting of pin boards

I have experimented and found that on thinner stock the 8 degree angle is not super critical, in fact with an 8 degree cutter, settings of 7 or 9 degrees on the router plate did not really make a very noticeable difference to the finished joint however on thicker work it *would be* apparent so keep things as accurate as possible.

"Now it's just clamp, slide, crank, scribe!" Tony Spear

[Home](#) | [Foreword](#) | [News](#) | [Through Dovetails](#) | [Jigs and Mods](#) | [Jigs and Mods2](#) | [Jigs and Mods3](#) | [Jigs and Mods4](#)
| [Work Holding 1](#) | [Tips](#) | [My Chat](#) | [Feed Back](#) | [Feedback2](#) | [Feedback3](#) | [Gallery](#) | [Reviews Page](#) | [Reviews1](#) | [Reviews2](#)
| [Reviews3](#) | [Reviews4](#) | [Links](#) | [Routers](#) | [Mini_Planes](#) | [Guestbook](#) | [Tools2004](#)

This page was last updated 10/07/2005 23:08:24